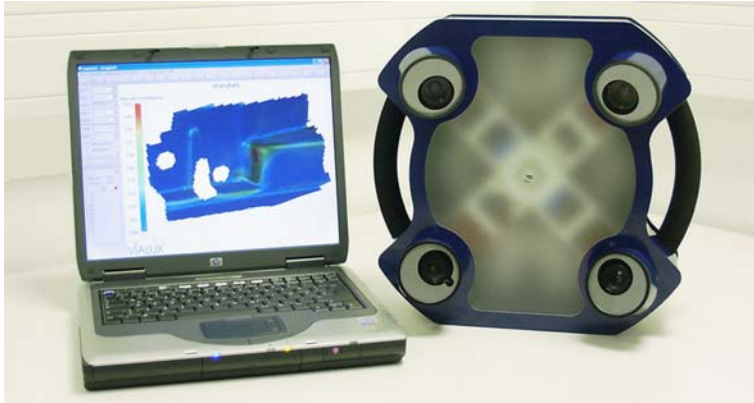


AutoGrid[®] compact

Dedicated Solution for Shop Floor Measurements



ViALUX introduces the new *AutoGrid[®] compact* measuring head targeting the needs in day-to-day shop floor testing. Based upon customer's feedback, the needs of sheet metal industry are comprehensively fulfilled.

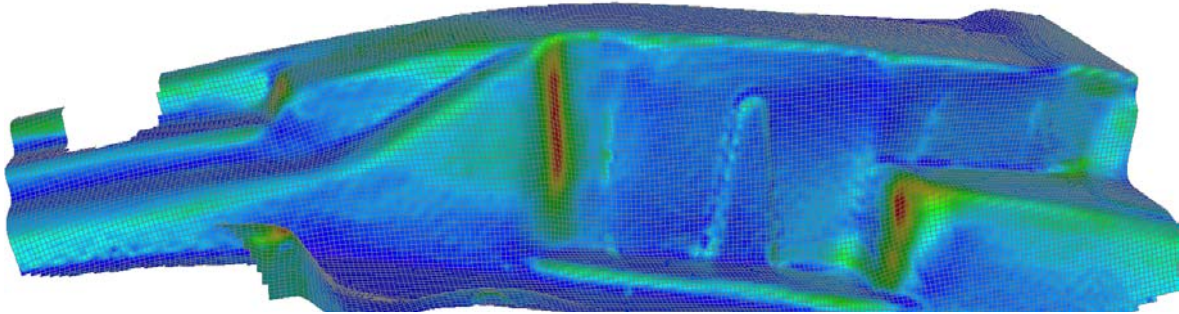
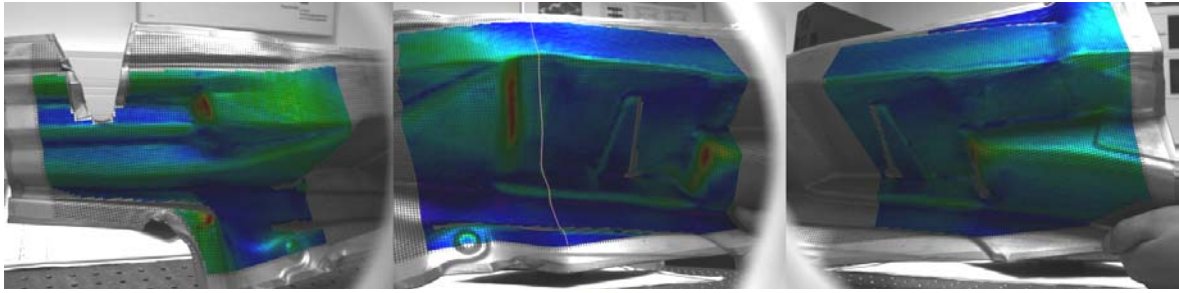
AutoGrid[®] compact serves for the whole process chain from tooling and tryout to production monitoring and quality assurance. The underlying principle is

the 3D measurement of initially squared grid patterns on a sheet after the forming process. The new *AutoGrid[®] compact* model of the system family has been recently developed in order to meet common user requirements for high mobility and flexibility combined with robustness and ease of use - therefore enabling full-field strain measurements on the factory floor. Employing latest camera technology, the new solution is completely based upon mobile computing, and the use of standard laptop computers provides a maximum of mobility.

Four cameras are rigidly placed inside the measuring head allowing for instant measurements without any setup and calibration stages. The operator makes handheld recordings by pressing the REC button just when pointing onto the object region of interest - and 4 CCD cameras are triggered to take the photogrammetric view. The object working distance is indicated by a laser and the high brightness LED illumination switches automatically during the recording. The convenient *AutoGrid[®]* user interface provides software control of exposure time and camera gain settings.

The new *AutoGrid[®] compact* system takes advantage of high-resolution cameras recording 5.7 million pixels in total per snapshot. In connection with high-quality optics the system is able to take an area of up to 0.5* 0.4 m² where up to 12.000 grid points can be rapidly evaluated in one picture set. Single measurements can be easily stitched together yielding the analysis of whole components without size limitations. In addition, the measuring head has been designed to firmly fit into a box meeting the international flight-cabin case dimensions.





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Specifications

- Measuring head:** 4 progressive scanning CCD cameras 1392 (H) x 1040 (V) active pixel with f=8 mm Schneider Kreuznach high quality measuring lenses; PC connection and power supply via a single 5 m cable using the firewire interface; convenient transport box meeting the international flight-cabin case dimensions
- Computer:** brand mark first class laptop PC with worldwide service, incl. laptop case (alternatively midi tower PC and TFT monitor on demand)
- Environment:** temperature: operating 10 ... 35° C, non-operating: -40 ... +70° C
 humidity: 20%...93% non-condensing
- Software:** Microsoft Windows XP Professional
 full compatibility with Microsoft Office applications and other standard software
- Measuring volume:** about 500*400*200 mm³ per image set (other volumes on demand)
- Field of data:** up to 12.000 measured points per single measurement;
 combined measurements without size limitation
- Calibration:** fixed optical setup maintaining long term calibration;
 automated, robust self-calibration procedure (3 min) using certified calibration gauge
- Measuring time:** 3-5 min for a complete analysis of one image set
- Results:** 3D shape: coordinates x,y,z [mm] at grid line crossing points; engineering strain ϵ [%], true strain ϕ , v.Mises equivalent strain, thinning [%], thickness [mm]
- Accuracy (rms):**

field of view [mm ³]	grid [mm]	Points per image set	Δx [mm]	Δy [mm]	Δz [mm]	$\Delta \epsilon$
500*400*200	2.0	> 12.000	0.01	0.01	0.02	0.5 %
500*400*200	3.0	> 9.000	0.01	0.01	0.02	0.3 %
500*400*200	5.0	> 6.000	0.01	0.01	0.02	0.1 %

- Graphs:** 3D surface display using original object grid for direct result mapping to object color encoded presentation of strain and thickness as texture on the 3D object
 2D data profiles along user defined curves
 forming limit diagram (FLD) with various FLC's and auxiliary lines
 interactive tool for the creation of FLC's from strain data sets
 free editable FLD reports
- Export:** graphs: printer, clipboard, *.bmp, *.tif, *.png, *.jpg, *.vrml, *.ps, *.eps
 data: ASCII, AutoForm, Pam-Stamp, *.stl, AutoCAD